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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/394,647	09/08/1999	JEAN-PIERRE GAUTIER	2988-0651	4586

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NEW YORK, NY 100362711

EXAMINER

SODERQUIST, ARLEN

ART UNIT	PAPER NUMBER
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1743

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DATE MAILED: 02/27/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/394,647

Applicant(s)
Gautier et al.

Examiner
Arlen Soderquist

Art Unit
1743



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on Jan 2, 2002

2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-20 is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1-10 and 12-20 is/are rejected.

7) ☒ Claim(s) 11 is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☒ All b) ☐ Some* c) ☐ None of:

1. ☒ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) ☒ Notice of References Cited (PTO-892)

18) ☐ Interview Summary (PTO-413) Paper No(s). _____

16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

19) ☐ Notice of Informal Patent Application (PTO-152)

17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____

20) ☐ Other:

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 7-9 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Steinman (newly cited and applied). In the patent Steinman teaches an indicator solution having a dihydroxy complexometric dye, a masking agent, a stabilizer, an alkaline buffer and a chelating agent and a method for making the indicator solution. Column 4, lines 27-51 teach several azo dyes as the dihydroxy complexometric dye. Column 6 line 60 to column 7 line 56 teach various complexing/masking agents and several buffers that are usable in the composition. Examples 1-3 show several compositions which anticipate the above claims.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1-10 and 12-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hofmann or Knechtel (newly cited and applied) in view of Hutchings (newly cited and applied).

In the paper Hofmann presents a comparison of spectrophotometric methods for measuring chlorine dioxide in drinking water. The recognition that chlorine disinfection of drinking water may not be effective in controlling such as *Cryptosporidium* may lead to the

greater use of stronger alternative disinfectants, such as chlorine dioxide. Typical chlorine dioxide residual concentration requirements for disinfection may extend to less than 0.1 mg L^{-1} , thus requiring very good quantitation methods for optimal process control. Traditional methods have been cumbersome and sometimes inaccurate. This study examined three spectrophotometric methods for measuring chlorine dioxide in the $<0.1 \text{ mg L}^{-1}$ to 2 mg L^{-1} range, using acid chrome violet K (ACVK), lissamine green B, and amaranth reagents (both ACVK and amaranth are azo dyes). Figure 2 gives specifics about each of the reagents including the buffers used. Each method was assessed using both laboratory reagent water and various natural waters to identify the respective linear range, method precision, and the possible interference from natural color due to aqueous organic matter. Interferences arising from the presence of chlorine, chloramines, chlorite, chlorate, and permanganate were also evaluated, along with potential need to correct for temperature changes. Hofmann does not teach the presence of a borate buffer.

In the paper Knechtel teaches the determination of chlorine dioxide in sewage effluents. The decrease in absorbance at 550 nm of Acid Chrome Violet K (ACVK) allows the direct spectrophotometric determination of ClO_2 in sewage treatment plant effluent samples. Centrifugation is employed to remove suspended solids. In a $\text{NH}_4\text{Cl-NH}_3$ buffer of (pH 8.1-8.4), no interference from active Cl, hypochlorites, chlorites, chloramines, or nitrites was observed. The results obtained using the ACVK technique were verified with electron spin resonance spectrometry. Attached to the paper are pages from the Aldrich Chemical catalog and an STN search in the registry file of Chemical Abstracts. The first two structures correspond to Acid Chrome Violet K and are azo compounds. The third structure is a structure that was apparently erroneously identified as Acid Chrome Violet K in the Masschelein reference of record. From these structures and the associated names, it is clear that Acid Chrome Violet K is an azo-dye. Knechtel does not teach the presence of a borate buffer.

In the patent Hutchings teaches aqueous compositions containing a colorant and an alkali metal halogenite. Aqueous cleaner compositions containing an alkali metal halogenite, for example, NaClO_2 ; a stabilizable colorant; and a stabilizing amount of a stabilizer compound selected from the group consisting of alkali metal carbonates, borates and mixtures thereof. The

preferred embodiment further includes an anionic or anionic fluorocarbon surfactant. In the background Hutchings teaches that conversion of an alkali metal halogenite such as sodium chlorite into chlorine dioxide is known to occur at a pH of less than 9.0. When this happens coloring agents used in the cleansers fade creating problems associated with the lack of color. Column 4 lines 1-12 teach several dyes including azo-dyes that are known to be affected by this. The examples show several situations in which the production of chlorine dioxide is prevented by the use of a borate buffer.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the borate buffer Hutchings into the Hofmann or Knechtel reagent and method because of its known ability to stop the conversion of a compound such as sodium chlorite into chlorine dioxide which would have been expected to give incorrect results. Concentrations and methods of preparation would have been results effective variables that the Court has held to be within the skill of one of ordinary skill in the art (*In re Boesch*, 205 USPQ 215 (CCPA 1980)).

5. Claim 11 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The art of record does not teach or fairly suggest the use of Evans blue in a reagent or method for measuring chlorine dioxide.

6. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additional references are related to compounds, devices and methods of measuring chlorine species in water.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arlen Soderquist whose telephone number is (703) 308-3989. The examiner's schedule is variable between the hours of about 5:30 AM to about 5:00 PM on Monday through Thursday and alternate Fridays.

For communication by fax to the organization where this application or proceeding is assigned, (703) 305-7719 may be used for official, unofficial or draft papers. When using this number a call to alert the examiner would be appreciated. Numbers for faxing official papers are

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703-872-9310 (before finals), 703-872-9311 (after-final), 703-305-7718, 703-305-5408 and 703-305-5433. The above fax numbers will generally allow the papers to be forwarded to the examiner in a timely manner.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

A handwritten signature in cursive script, reading "Arlen Soderquist".

February 22, 2002

ARLEN SODERQUIST
PRIMARY EXAMINER